

Material Safety Data Sheet According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006


* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** NitraX Reagent Tube
- **Catalogue number:** CW/53.05.80
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

* 2 Composition/Data on components:

- **Chemical characterization**
- **Description:** sulfuric acid solution

- **Dangerous components:**

CAS: 7664-93-9	sulphuric acid	 C; R 35	80-90%
EINECS: 231-639-5			
EC Number: 016-020-00-8			

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 35 Causes severe burns.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**
Instantly rinse with water.

(Contd. on page 2)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: NitraX Reagent Tube

(Contd. of page 1)

Instantly wash with polyethylene glycol 400.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

- **After eye contact**

Rinse opened eye for several minutes under running water.

Call a doctor immediately.

- **After swallowing**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; instantly call for medical help.

- **Information for doctor**

- **The following symptoms may occur:**

after inhalation:

damage to the affected mucous membranes

sickness

after swallowing:

pain

vomiting

diarrhoea

breathing difficulty

Strong caustic effect.

coughing

- **Danger**

Danger of impaired breathing.

Danger of system failure.

Danger of gastric perforation.

- **Treatment**

If swallowed or in case of vomiting, danger of entering the lungs

Subsequent observation for pneumonia and pulmonary oedema

* 5 Fire fighting measures

- **Suitable extinguishing agents** CO₂, sand, extinguishing powder. Do not use water.

- **For safety reasons unsuitable extinguishing agents** Water.

- **Special hazards caused by the material, its products of combustion or resulting gases:**

Formation of toxic gases is possible during heating or in case of fire.

nitrous gases

Sulphur oxides (SO_x)

hydrogen

- **Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

- **Additional information**

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Collect contaminated fire fighting water separately. It must not enter drains.

* 6 Accidental release measures

- **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.

- **Measures for cleaning/collecting:**

Neutralize with diluted sodium hydroxide solution or by throwing on lime sand, lime or sodium carbonate.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose of contaminated material as waste according to item 13.

(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: NitraX Reagent Tube

(Contd. of page 2)

Ensure adequate ventilation.

*** 7 Handling and storage****· Handling****· Information for safe handling:**

- Keep away from heat and direct sunlight.
- Ensure good ventilation/exhaustion at the workplace.
- Open and handle container with care.
- Prevent formation of aerosols.
- Use only in well ventilated areas.

· Information about protection against explosions and fires: The product is not flammable**· Storage****· Requirements to be met by storerooms and containers:** Store in cool location.**· Information about storage in one common storage facility:**

- Store away from water.
- Store away from oxidizing agents.
- Store away from metals.

· Further information about storage conditions:

- Keep container tightly sealed.
- Protect from heat and direct sunlight.
- Protect from humidity and keep away from water.
- Protect from the effects of light.
- This product is hygroscopic.

*** 8 Exposure controls and personal protection****· Additional information about design of technical systems:** No further data; see item 7.**· Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· Additional information: The lists that were valid during the compilation were used as basis.**· Personal protective equipment****· General protective and hygienic measures**

- Keep away from foodstuffs, beverages and food.
- Take off immediately all contaminated clothing
- Wash hands during breaks and at the end of the work.
- Do not inhale gases / fumes / aerosols.
- Avoid contact with the eyes and skin.
- Do not eat, drink or smoke while working.

· Breathing equipment: Use breathing protection against the effects of fumes/dust/aerosol.**· Recommended filter device for short term use:** Filter B**· Protection of hands:**

- Acid resistant gloves
- Only use chemical-protective gloves with CE-labelling of category III.
- Preventive skin protection by use of skin-protecting agents is recommended.
- After use of gloves apply skin-cleaning agents and skin cosmetics.

· Material of gloves

- Butyl rubber, BR
- Fluorocarbon rubber (Viton)
- Recommended thickness of the material: ≥ 0.7 mm

· Penetration time of glove material

- The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Value for the permeation: Level ≥ 6 (480 min)

· Eye protection: Tightly sealed safety glasses.

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: NitraX Reagent Tube

(Contd. of page 3)

 · **Body protection:** Acid resistant protective clothing

* 9 Physical and chemical properties:

· Form:	Fluid
· Colour:	Clear
· Odour:	Weak, characteristic
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	~ 200°C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	23 hPa
· Density at 20°C	1.748 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	< 1
· Solvent content:	
Organic solvents:	0.0 %
Water:	> 10 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** strong heating
- **Materials to be avoided:**
 - ammonia
 - alkali compounds
 - alkalis
 - acids
 - metals
 - halogen compounds
 - combustible substances
 - organic solvents
 - nitriles
 - peroxides
 - oxidizing agents
- **Dangerous reactions**
 - Heating occurs when water is added
 - Corrosive action on metals
 - When diluting, always add acid to water, never vice versa
 - Reacts with metals forming hydrogen
 - Reacts with organic substances
 - Diluting or dissolving in water always causes rapid heating
 - Forms hydrogen in aqueous solution with metals
 - > Explosive
- **Dangerous products of decomposition:**
 - Hydrogen
 - nitrous gases
 - Sulphur oxides (SO_x)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: NitraX Reagent Tube

(Contd. of page 4)

* 11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

- **LD/LC50 values that are relevant for classification:**

7664-93-9 sulphuric acid

Oral	LD50	2140 (25%) mg/kg (rat)
Inhalative	LC 50	510 (pure) mg/m ³ /2h (rat)

- **Primary irritant effect:**

- **on the skin:** Strong caustic effect on skin and mucous membranes.

- **on the eye:** Strong caustic effect.

- **Sensitization:** No sensitizing effect known.

- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Corrosive

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**

- **Other information:** Inorganic substance. Does not cause biological oxygen deficit.

- **Ecotoxicological effects:**

- **Aquatic toxicity:**

7664-93-9 sulphuric acid

Daphnia EC50	29 mg/l/24h (Daphnia magna)
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- **Remark:**

Forms corrosive mixtures with water even if diluted.

toxic for fish

Toxic for algae

- **Remark:** neutralization possible

- **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

* 13 Disposal considerations

- **Product:**

- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **European waste catalogue**

16 05 07	discarded inorganic chemicals consisting of or containing dangerous substances
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- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

— GB —

(Contd. on page 6)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: NitraX Reagent Tube

(Contd. of page 5)

14 Transport information

· Land transport ADR/RID (cross-border)



- ADR/RID-GGVS/E Class: 8 (C1) Corrosive substances.
- Kemler Number: 80
- UN-Number: 1830
- Packaging group: II
- Label: 8
- Designation of goods: 1830 SULPHURIC ACID

· Maritime transport IMDG:



- IMDG Class: 8
- UN Number: 1830
- Label: 8
- Packaging group: II
- EMS Number: F-A,S-B
- Marine pollutant: No
- Correct technical name: SULPHURIC ACID

· Air transport ICAO-TI and IATA-DGR:



- ICAO/IATA Class: 8
- UN/ID Number: 1830
- Label: 8
- Packaging group: II
- Correct technical name: SULPHURIC ACID

*15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

C Corrosive

· Hazard-determining components of labelling:

sulphuric acid

· Risk phrases:

35 Causes severe burns.

· Safety phrases:

- 20 When using do not eat or drink.
- 23 Do not breathe fumes/aerosol.
- 25 Avoid contact with eyes.
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- 60 This material and its container must be disposed of as hazardous waste.

(Contd. on page 7)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: NitraX Reagent Tube

(Contd. of page 6)

- **National regulations**
 - **Information about limitation of use:** Employment restrictions concerning young persons must be observed.
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16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant R-phrases**
35 Causes severe burns.
 - **Department issuing data specification sheet:** Technical Department
 - *** Data compared to the previous version altered.**
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Material Safety Data Sheet According to 91/155 EEC

Printing date 27.01.2006

Reviewed on 27.01.2006

1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Nitrate Chromotropic
- **Catalogue number:** CW/53.05.90
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Preparation contains anorganic and organic compounds.

- **Dangerous components:**

CAS: 7681-57-4	disodium disulphite	<input checked="" type="checkbox"/> Xn; R 22-31-41	$\leq 2.5\%$
EINECS: 231-673-0			
EC Number: 016-063-00-2			

- **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard designation:** void
- **Information pertaining to particular dangers for man and environment**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system**
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing**
Drink copious amounts of water, induce vomiting.
In case of persistent symptoms consult doctor.
- **Information for doctor**
- **The following symptoms may occur:**
After swallowing of large amounts:
gastric or intestinal trouble

Material Safety Data Sheet

According to 91/155 EEC

Printing date 27.01.2006

Reviewed on 27.01.2006

Product name: Nitrate Chromotropic

(Contd. of page 1)

 general feeling of sickness

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
 - **Special hazards caused by the material, its products of combustion or resulting gases:**
Formation of toxic gases is possible during heating or in case of fire.
sodium oxide
 - **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
 - **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
-

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
Dispose of contaminated material as waste according to item 13.
Collect mechanically.
Ensure adequate ventilation.
 - **Additional information:** No dangerous materials are released.
-

7 Handling and storage

- **Handling**
 - **Information for safe handling:** Thorough dedusting.
 - **Information about protection against explosions and fires:** The product is not flammable
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.
 - **Information about storage in one common storage facility:** Store away from oxidizing agents.
 - **Further information about storage conditions:**
Protect from heat and direct sunlight.
Store under dry conditions.
Protect from humidity and keep away from water.
Protect from the effects of light.
-

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

Components with limit values that require monitoring at the workplace:

7681-57-4 disodium disulphite

WEL (Great Britain) Long-term value: 5 mg/m ³
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- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
Wash hands during breaks and at the end of the work.
Do not eat, drink or smoke while working.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.

(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 27.01.2006

Reviewed on 27.01.2006

Product name: Nitrate Chromotropic

(Contd. of page 2)

- **Recommended filter device for short term use:** Filter P2
 - **Protection of hands:** Preventive skin protection by use of skin-protecting agents is recommended.
 - **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
 - **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level ≥ 6 (480 min)
 - **Eye protection:** Safety glasses
 - **Body protection:** Protective work clothing.
-

9 Physical and chemical properties:

· Form:	Powder
· Colour:	Cream coloured
· Odour:	Weak, characteristic
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Density	Not determined
· Solubility in / Miscibility with Water:	Partly soluble
· pH-value (15 g/l) at 20°C:	4.7
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
 - **Materials to be avoided:**
oxidizing agents
--> forms heat
 - **Dangerous reactions** Contact with acids releases toxic gases
 - **Dangerous products of decomposition:**
Sulphur dioxide
see chapter 5
-

*11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

LD/LC50 values that are relevant for classification:		
57-13-6 urea		
Oral	LD50	8471 mg/kg (rat)
Dermal	LD50	8200 mg/kg (rat)
7681-57-4 disodium disulphite		
Oral	LD50	1540 mg/kg (rat)

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 27.01.2006

Reviewed on 27.01.2006

Product name: Nitrate Chromotropic

(Contd. of page 3)

- **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** Irritant effect.
 - **Sensitization:**
Sensitizing effect by inhalation is possible by prolonged exposure.
Sensitizing effect by skin contact is possible by prolonged exposure.
 - **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version.
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The usual precautionary measures should be adhered to general rules for handling chemicals.
-

*12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
Quantitative data on the ecological effect of this product are not available.
CAS-No. 57-13-6:
96% / 16 d

· Behaviour in environmental systems:	
57-13-6 urea	
log P(o/w)	-1.59 (.)

- **Ecotoxicological effects:**

· Aquatic toxicity:	
57-13-6 urea	
Daphnia EC50	> 10000 mg/l/24h (Daphnia magna)
LC50	> 6810 mg/l/96h (Leuciscus idus)
7681-57-4 disodium disulphite	
EC50	89 mg/l/48h (Daphnia magna)
LC50	150-220 mg/l/96h (Onchorhynchus mykiss)

- **Remark:**
- **Algae toxicity:**
CAS No. 7681-57-4 Desmodesmus subspicatus IC50: 48mg/l/72 h

7681-57-4 disodium disulphite	
IC50	48 mg/l/72h (Desmodesmus subspicatus)

- **Bacterial toxicity:**
CAS No. 7681-57-4 Pseudomonas putida EC50: 56 mg/l/17 h

7681-57-4 disodium disulphite	
EC50	56 mg/l/17h (Pseudomonas putida)

- **Additional ecological information:**

· COD-value:	
7681-57-4 disodium disulphite	
COD	0.168 g/g (.)

- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment acc. VwVwS Annex 4): hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system.
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(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 27.01.2006

Reviewed on 27.01.2006

Product name: Nitrate Chromotropic

(Contd. of page 4)

13 Disposal considerations

- **Product:**
- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

European waste catalogue	
16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

- **Uncleaned packagings:**
 - **Recommendation:** Disposal must be made according to official regulations.
 - **Recommended cleaning agent:** Water, if necessary with cleaning agent.
-

14 Transport information

- | | |
|--|---|
| Land transport ADR/RID (cross-border) | |
| ADR/RID-GGVS/E Class: | - |

- | | |
|---------------------------------|----|
| Maritime transport IMDG: | |
| IMDG Class: | - |
| Marine pollutant: | No |

- | | |
|--|---|
| Air transport ICAO-TI and IATA-DGR: | |
| ICAO/IATA Class: | - |

- **Transport/Additional information:** Not dangerous according to the above specifications.
-

15 Regulatory information

- **Designation according to EC guidelines:**
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).
 - **Special designation of certain preparations:**
Safety data sheet available for professional user on request.
-

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant R-phrases**
22 Harmful if swallowed.
31 Contact with acids liberates toxic gas.
41 Risk of serious damage to eyes.
 - **Department issuing data specification sheet:** Technical Department
 - *** Data compared to the previous version altered.**
-